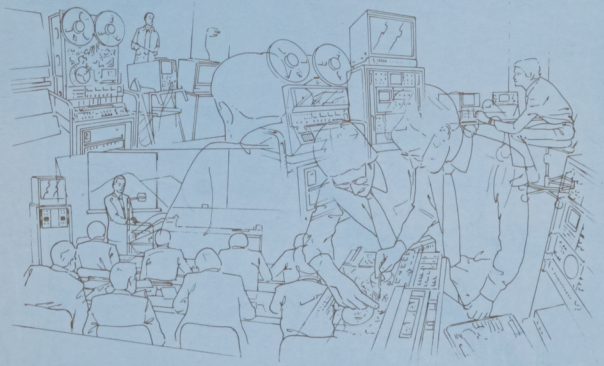
MC

BVP-360P ALIGNMENT

BKP-3604, BKP-3605, BKP-3606,

BKP-3607 ALIGNMENT



SONY Broadcast

Technical Training and Technical Publications

SONY Broadcast

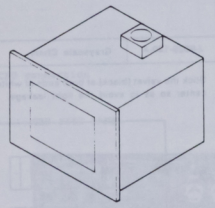
PREPARATION

Equipment Required

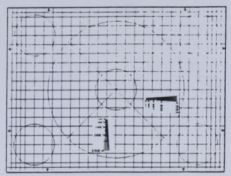
- Oscilloscope
- Waveform Monitor (WFM)
- Vectorscope
- B/W Monitor (H resolution: more than 700 TV lines)
- Test Signal Generator (Cross-hatching signal can be output.)
- Frequency Counter
- Digital Voltmeter

J-6020-490-A	Pattern Box PTB-100 (AC90 to 130V)

(WITH COLOR-BAR CHART)

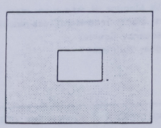


J-6026-120-A	Registration Chart

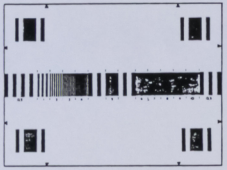


White Window Chart

Cut hole from the center of a sheet of black paper.

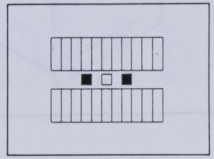


J-6026-110-A	Multiburst Chart

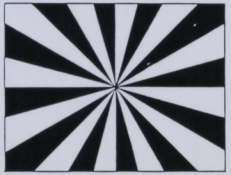


J-6026-130-A	Grayscale Chart

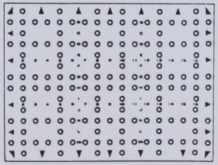
Stick the velvet (black) at both ends of white pattern in the center so as to avoid the light leakage.



J-6024-340-8	Siemens Star Chart

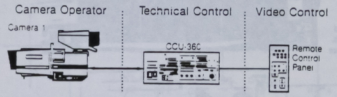


J-6021-890-A	Ball Pattern Chart



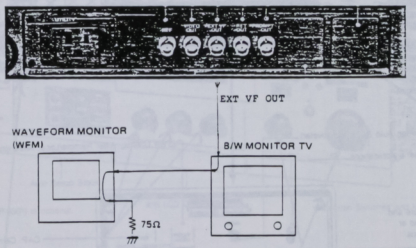
1 CAMERA CONNECTION FOR ADJUSTMENT

1. total system



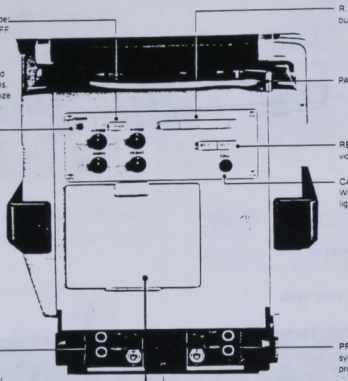
2. CHU connection

CHU SIDE PANEL



2 CHU FUNCTION AND CONTROLS

• REAR PANEL



CURSOR: BOX CURSOR viewfinder indication can be switched ON/OFF. When pressed, box cursor is displayed in the viewfinder.

CURSOR CONTROL: H-POSI and V-POSI are cursor position controls. WIDTH and HEIGHT are cursor size controls.

POWER: Green lamp

R, G, B, G: Test output selection buttons for registration adjustment

PAN LOCK: Pull right to lock

RET 2/1: Two channels of return video can be selected.

CALL: Call button to CCU and RCP. When this is pressed, tally lamp lights at CCU and RCP.

ENG: Engineer's communication system (double jack)
- INCOM: Intercom system from CCU for engineer
- PGM: Program audio from CCU
- INCOM/PGM audio level control: Volume. Level adjustment is possible for INCOM/PGM.
- MIC: Intercom Microphone ON/OFF switch

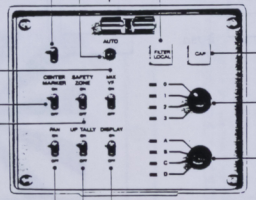
PROD: Production communication system similar facility to ENG, for program director.

FAN: Ventilation fan for special shooting conditions.

AUTO: Red lamp lights when Auto Setup is activated.

SPARE SWITCH: For user's applications.

FILTER LOCAL: Filter Remote/Local selection.



MIX VF: Viewfinder picture and return video can be mixed at viewfinder for simultaneous observation.

CAP: Camera cap.

CENTER MARKER: Cross indication as a center marker.

ND FILTER: Switch selection of ND filters from 0 to 3.

SAFETY ZONE: Safety zone indication in the VF on/off switch.

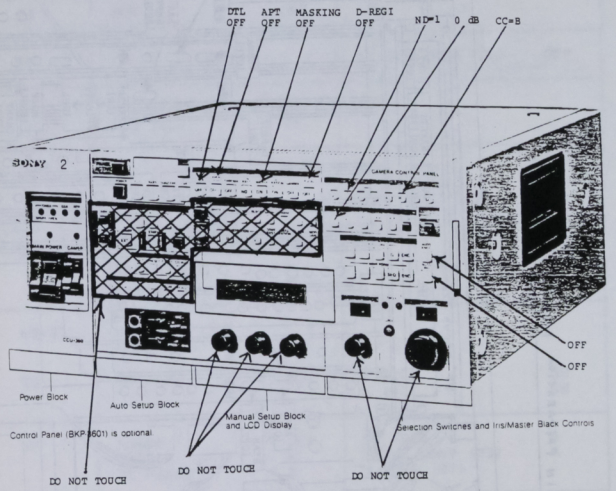
CC FILTER: Switch selection of color filters from A to D.

FAN: Fan on/off switch.

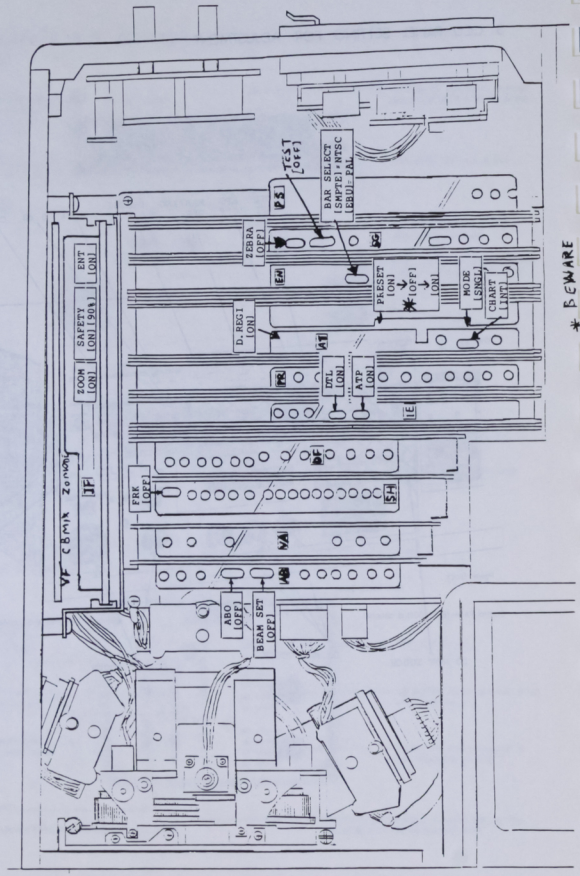
UP TALLY: Tally at camera head ON/OFF switch.

DISPLAY: Camera status indication and warning indication in VF can be switched on/off.

3 CCU PANEL SETTING FOR ADJUSTMENT



4. INITIAL SWITCH SETTINGS IN PREPARATION FOR ADJUSTMENT.



* BEWARE

CAMERA HEAD SWITCH POSITIONS PREPARING FOR ADJUSTMENT

(WITH CCU AND/OR REMOTE CONTROL PANELS)

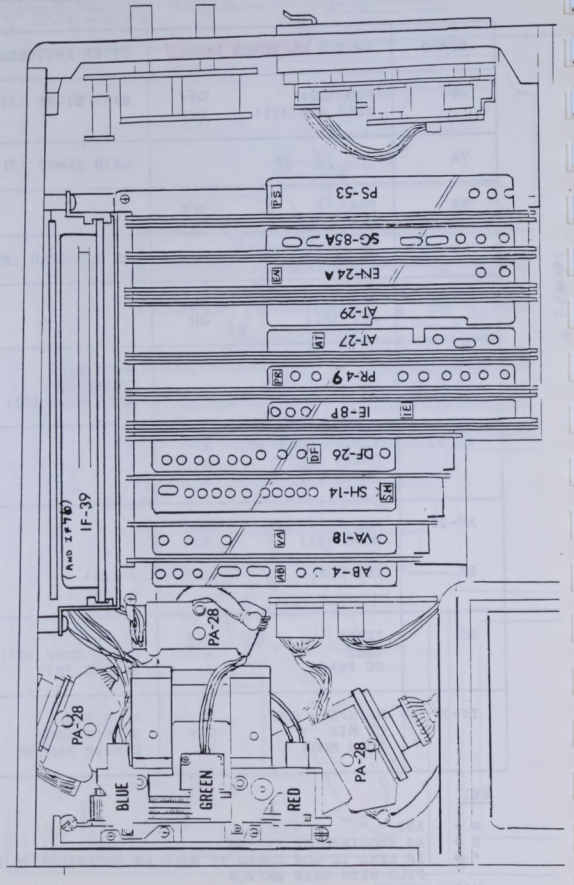
BOARD	SWITCH ON BOARD PANEL		OTHER SWITCHES ON BOARD	
AB	ABO (S2) BEAM SET (S1)	OFF OFF	BIAS LIGHT (S3)	ON
VA	-		GAIN RANGE (S1)	A
SH	FRK Focus Rock	OFF	-	
DF	-		S2 OVERSCAN (S2)	OFF
IE	DTL (S2) APT (S1)	ON ON		
PR	-		MASK (S1) GAMMA (S2) AUTO KNEE (S3)	A A A
AT-27	Automatic set up A.S.U. MODE (S2) CHART (S1) LENS (S3)	A A A*		
AT-29	Preset ALL PRST (S3) MODE (S2)	OFF NOR		
EN	EBU/95%	EBU	V (S2) U (S3)	ON ON
SG	ZEBRA TEST SC PHASE	OFF A S	CF (S2) CABLE COMP (S3) H BLKG (S7)	A A
IF-39	VF B/W - COL CB MIX ZOOM MODE	VF ON! S	ZOOM POS. SAFETY ZONE CENTRE MARKER	ON ON ON

KEY

A = ANY
S = AS REQUIRED BY SYSTEM
* = IF LENS IS NOT CODED IT WILL BE NECESSARY TO SELECT LENS FILE WITH THIS SWITCH
NOR = NORMAL

! = TO DISPLAY Y SIGNAL ON BW VIEWFINDER, LINK RS1 ON IF-76 BOARD MUST BE REMOVED TOO.

5 BOARD LOCATION



STEP. 1 POWER ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	D V M
2	EXT-BOARD	PS-53	5		
3	LENS IRIS	Closed	6		

PROCEDURE:

ITEM	TEST POINT	VOLUME	SPEC
+6.3V	TP-1	RV1	+6.3 +-0.02V
+9.5V	TP-4	RV2	+9.5 +-0.01V
+9.0V	TP-3	RV3	+9.0 +-0.01V
-9.0V	TP-5	RV7	-9.0 +-0.01V
+5.0V	TP-2	Check	+5.0 +-0.05V

STEP. 2 SC FREQ ADJUSTMENT

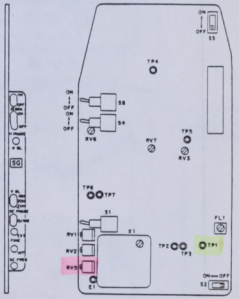
SETTING:

1	OBJECT		4	MEASURING	Freq COUNTER
2	EXT-BOARD	SG-05L	5		
3	LENS IRIS	Closed	6		

PROCEDURE:

1. Frequency counter = SG board's TP1.
2. Adjust SG-board's RV5 for 3.579545Hz ±2Hz or 4.433619Hz ±2Hz (in PAL).

Při přepnutí S2 do polohy TEST (deska TR v kvart. interfase v CCU)



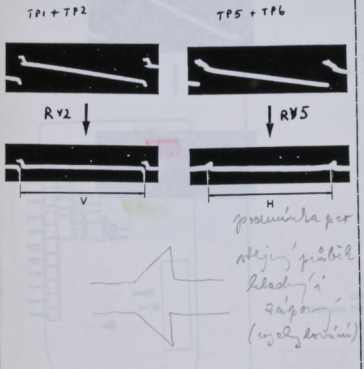
STEP. 3 H/V BALANCE ADJUSTMENT

SETTING:

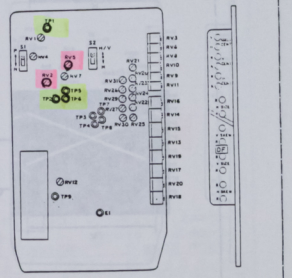
1	OBJECT		4	MEASURING	Oscilloscope
2	EXT-BOARD	DF-26	5		
3	LENS IRIS	CLOSED	6		

PROCEDURE:

1. After calibrating both oscilloscope channels 1V/dup a.c.,
2. Connect CH1 probe to TP1 and CH2 probe to TP2 on DF-26.
3. Put oscilloscope into ADD mode.
4. Adjust RV2 on DF-26 so that vertical responce is flat.
5. Connect CH1 to TP5 and CH2 to TP6 on DF-26.
6. Adjust RV5 on DF=26 so that horizontal responce is flat.



postupuje se stejným způsobem jako nastavení (vyvážení)



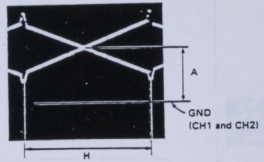
STEP. 4 **Gw Voltage** (G1) **ADJUSTMENT**

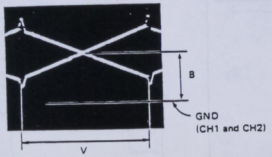
SETTING:

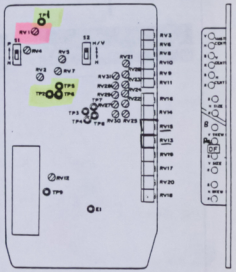
1	OBJECT		4	MEASURING	Oscilloscope
2	EXT-BOARD	DF-26	5		
3	LENS IRIS	Closed.	6		

PROCEDURE:

1. Connect probes to TP5, TP6 on DF-26.
2. Measure the Cross-point of sawtooths (A).
3. Connect probes to TP1, TP2 on DF-26.
4. Adjust RV1 on DF-26 so that Cross point of sawtooth (B) is same as (A).







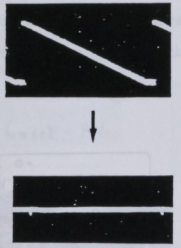
STEP. 5 **DF INITIAL SET** **ADJUSTMENT**

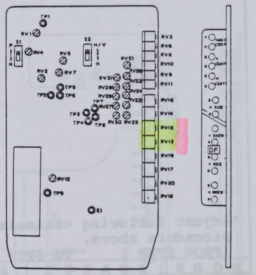
SETTING:

1	OBJECT		4	MEASURING	Oscilloscope
2	EXT-BOARD	DF-26	5		
3	LENS IRIS	Closed	6		

PROCEDURE:

1. Connect probe to wiper of RV13 on DF-26.
2. Adjust RV13 on DF-26 so that response is flat.
3. Connect probe to per of RV15 on DF-26.
4. Adjust RV15 on DF-26 so that response is flat.





STEP. 6 BEAM SET ADJUSTMENT

SETTING:

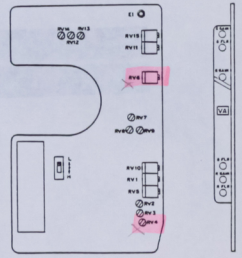
1	OBJECT	GRAY SCALE	4	MEASURING	Oscilloscope
2	EXT-BOARD	VA-18	5		
3	LENS IRIS	100IRE, 700mV	6		

PROCEDURE:

1. Adjust LENS IRIS so that signal is 100IRE, 700mV(PAL) on WFM.
2. Connect probe to A5 on VA-EX board.
3. Set S1 (BEAM SET) to ON on AB-board.
4. Adjust LENS IRIS and RV4 on AB-board so that signal is cliped at 500mV.
5. Set S1 (BEAM SET) to OFF on AB-board.

(automatically re mastered -6dB)

VA - Board !



*Adjust following channels as in procedure above.
(FROM STEP 2 TO STEP 4)

MODE	MEASUR		ADJUST	
G - CH	VA-18	A5	AB-4	RV4
R - CH	VA-18	A13	AB-4	RV6
B - CH	VA-18	A9	AB-4	RV5

STEP. 7 ABO ADJUSTMENT

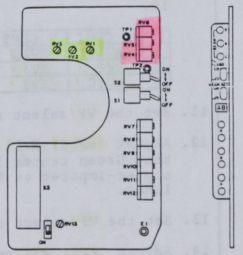
SETTING:

1	OBJECT	Sculpture, white plaster	4	MEASURING	Oscilloscope
2	EXT-BOARD	AB-4	5		
3	LENS IRIS		6		

PROCEDURE:

1. Zoom size is ½ WHITE WINDOW CHART.
2. Set ABO SW (S2) on AB-4 to ON.
3. Connect TP1 on PA-G board.
4. Adjust LENS IRIS for 600mV.
5. Open the 3 stop F NO. from step 4.
6. Adjust RV1 on AB-4 so that signal is just cliped.
7. Connect TP1 on PA-R board.
8. Adjust RV3 on AB-4 so that signal is just cliped.
9. Connect TP1 on PA-B board.
10. Adjust RV2 on AB-4 so that signal is just cliped.

BEAM SET



STEP. 8 BEAM ALIGNMENT ADJUSTMENT

SETTING:

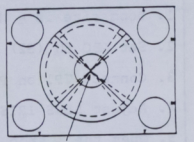
1	OBJECT	REGI CHART	4	MEASURING	B/W MONITOR
2	EXT-BOARD	DF-26	5		
3	LENS IRIS	70IRE, 500mV	6		

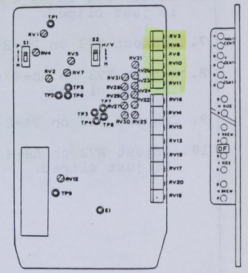
PROCEDURE:

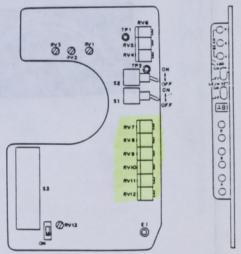
1. Set the VF select sw to [G].
2. Adjust LENS IRIS for 70IRE, 500mV(PAL) on WFM.
3. Set S2 on DF-26 to [H/V] position.
4. Adjust RV6 (MAS.H.CENT) and camera position so that both side of tube mask spaces are same space.
5. Adjusts RV3 (MAS.V.CENT) and camera position so that upper side of tube mask space and lower side of tube mask space are same space.
6. Set S2 on DF-26 to OFF.
7. Set the S1 on SH-14 to ON. (FRK)
8. Adjust RV11, RV12 on AB-4 so that center of registration chart picture is not wobbled.
9. Set S2 on SH-14 to OFF.
10. Set the VF select sw to [R] or [B] and perform from step 3 to 10.

	H CENT	V CENT	ALIGNMENT
R	RV11	RV10	RV7, RV8
G	RV6	RV3	RV11, RV12
B	RV10	RV8	RV10, RV9

11. Set the VF select sw to [R-G].
12. Adjust RV10, RV11 on DF-26 so that Green center lines are sup er-imposed on Red center lines.
13. Set the VF select sw to [B-G].
14. Adjust RV8, RV9 on DF-26 so that Green center lines are sup er-imposed on Blue center lines.







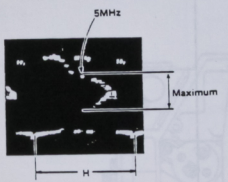
STEP. 9 E. FOCUS ADJUSTMENT

SETTING:

1	OBJECT	IN-MEGA CHART	4	MEASURING	WFM
2	EXT-BOARD		5		
3	LENS IRIS	70IRE 500mV	6		

PROCEDURE:

1. Depress the VF select sw to [G].
2. Adjust LENS IRIS so that signal is 70IRE, 500mV(PAL) on WFM.
3. Adjust LENS Focus.
4. Adjust RV5 (G FOCUS) on PS-53 so that 5MHZ level is maximum.



*Adjust following channels as in procedure above.
(FROM STEP TO STEP)

MODE	MEASUR	ADJUST
G - CH	WFM	PS-53 RV5
R - CH	WFM	PS-53 RV6
B - CH	WFM	PS-53 RV4

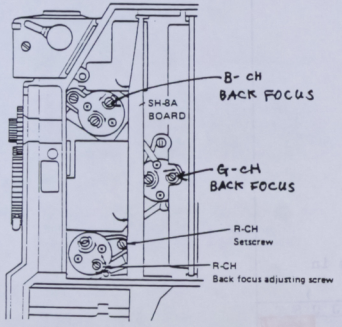
STEP. 10 **BACK FOCUS** ADJUSTMENT

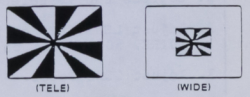
SETTING:

1	OBJECT	Siemens-Star chart	4	MEASURING	B/W MONITOR
2	EXT-BOARD		5		
3	LENS IRIS	70IRE, 500mV	6		

PROCEDURE:

1. Set the VF select to [G].
2. Put the LENS ZOOM at TELE and adjust the FOCUS.
3. Put the LENS ZOOM at WIDE. (DO not touch the LENS FOCUS.)
4. Adjust the back focus adjustment screw so that image picture is focused.
5. Repeat 2--3 times from step 2 to 4.
6. Without changing ~~Do not touch~~ the LENS FOCUS, ~~until end of this adjustment.~~ Adjust B, R back focus and zoom at 40 mm.





Monitor screen

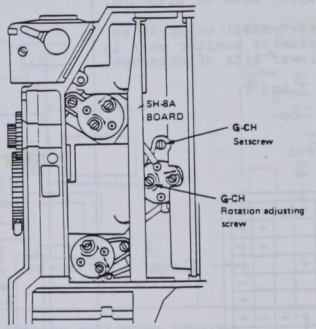
STEP. 11 G-ch (Horizontal) ADJUSTMENT

SETTING:

1	OBJECT	REGI-CHART	4	MEASURING	B/W MONITOR
2	EXT-BOARD		5		
3	LENS IRIS	70IRE, 500mV	6		

PROCEDURE:

1. Depress the VF select SW to[G].
2. Adjust the LENS IRIS so that signal is 70IRE, 500mVp-p(PAL) on WFM.
3. Depress the CURSOR SW.
4. Adjust the CURSOR VR (V posn, height) so that Regi chart Horizontal Center line is Adjusted to cursor center line. horizontal
5. Loosen the G-ch fixing screw.
6. Adjusting the rotation screw so that Regi chart Center line is parallel with the Cursor Center lime.
7. Depress the VF select SW to [R]or [B]. Then Adjust same procedure as G-ch.



STEP. 12 MASTER H/V CENT/SIZE ADJUSTMENT

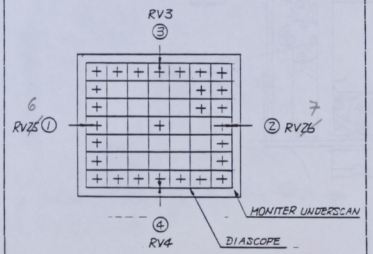
SETTING:

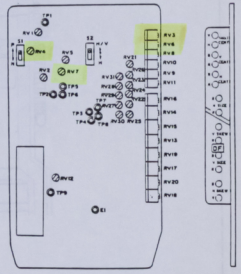
1	OBJECT	DIASCOPE	4	MEASURING	B/W MONITOR
2	EXT-BOARD	DF-26	5		
3	LENS IRIS	70IRE, 500mV	6		

PROCEDURE:

1. Depress the DIASCOPE BUTTON on CCU.
2. Set the VF select SW to [G].
3. Set the B/W MONITOR to underscan.
4. Adjust RV6 (H.M.CENT) on DF-26 so that left side of monitor scan is touched to left side of diascope.
5. Adjust RV7 (H.M.SIZE) on DF-26 so that right side of monitor scan is touched to right side of diascope.
6. Repeat step 4 and 5.
7. Adjust RV3 (V.M.CENT) on DF-26 so that upper side of monitor scan is touched to upper side of diascope.
8. Adjust RV4 (V.M.SIZE) on DF-26 so that lower side of monitor scan is touched to lower side of diascope.
9. Repeat step 7 and 8.

Kontrolovat na monitoru ne na Akcelatoru (špatné geometrické zobrazení)





3.12

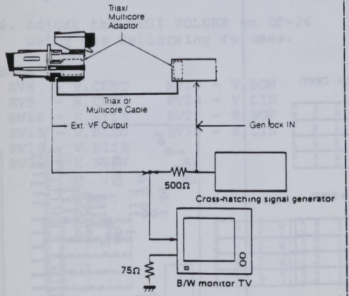
STEP. 13 G ch LINEARITY ADJUSTMENT

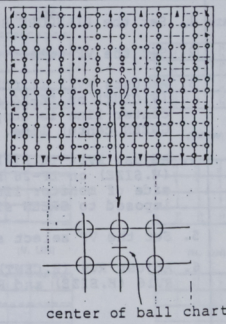
SETTING:

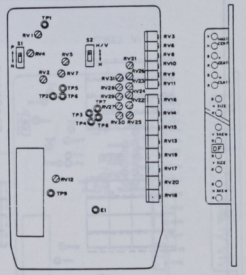
1	OBJECT	BALL CHART	4	MEASURING	B/W MONITOR
2	EXT-BOARD	DF-26	5		
3	LENS IRIS	70IRE 500mV	6		

PROCEDURE:

1. Depress the VF select SW to [G].
2. Connect SIGNAL GEN to B/W MONITOR. (FIG-1)
3. Adjust RV6 (H. PHASE) on SG-85A so that Cross-hatch signal center is in center of B/W MONITOR.
4. Position the CAMERA so that center circle of ball chart is within center of cross signal(cross-hatch center).
5. Adjust ZOOM LENS, then adjust RV21(M.SKEW), RV31(M.LVL), RV26(M.VLIN) so that cross-hatch lines touch all ball chart circles.







AFTER ADJUSTMENT, PERFORM FOLLOWING SETTING.

3.13

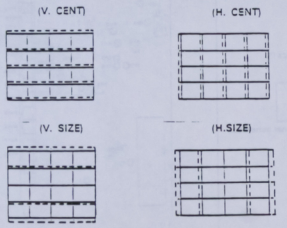
STEP. 14 B/R ch H/V CENT & SIZE ADJUSTMENT

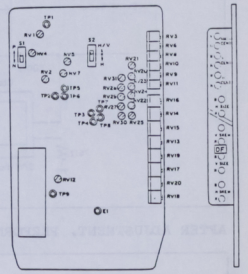
SETTING:

1	OBJECT	DIASCOPE	4	MEASURING	B/W MONITOR
2	EXT-BOARD		5		
3	LENS IRIS	70IRE, 500mV	6		

PROCEDURE:

1. Set the DIASCOPE BUTTON on CCU.
2. Set the VF select sw to [R-G]
3. Adjusts RV11 (H.CENT) and RV10 (V.CENT) on Df-26 so that RED center line is supper-imposed to GREEN center line.
4. Adjust RV14 (H.SIZE) and RV17 (V.SIZE) on DF-26 so that both side of monitor line is supper-imposed to GREEN side line.
5. Set the VF select sw to [B-G].
6. Adjust RV9 (H.CENT), RV8 (V.CENT), RV16 (H.SIZE) and RV19 (V.SIZE).





STEP. 15 REGE ADJUSTMENT

SETTING:

1	OBJECT	REGI-CHART	4	MEASURING	B/W MONITOR
2	EXT-BOARD	DF-26	5		
3	LENS IRIS	&)IRE, 500mV	6		

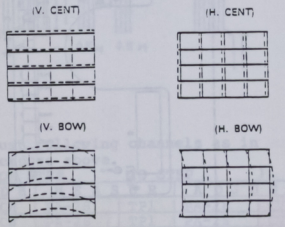
PROCEDURE:

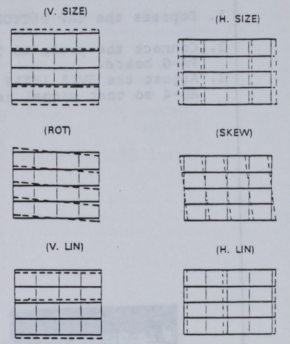
1. Dapres the VF select SW to [G].
2. Adjust the LENS IRIS so that signal is 70 IRE, 500mV(PAL) in WFM.
3. Depress the VF select SW to [R-G].
4. Adjust the REGI VOLUME on DF-26 Using the following volumes.

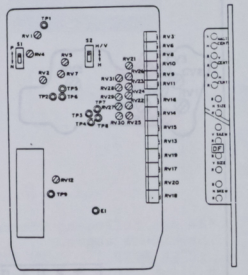
RED
RV10 - V.CENT RV18 - H.SKEW
RV11 - H.CENT RV28 - H.LIN
RV14 - H.SIZE RV23 - H.BOW
RV13 - V.SKEW RV27 - V.BOW
RV17 - V.SIZE RV22 - V.LIN

5. Depress the VF setect SW to [B-G].
6. Adjust the REGI VOLUME on DF-26 using the follorwing volumes.

BULE
RV8 - V.CENT RV29 - V.BOW
RV9 - H.CENT RV24 - V.LIN
RV16 - H.SIZE RV25 - H.BOW
RV15 - V.SKEW RV30 - H.LIN
RV19 - V.SIZE
RV20 - H.SKEW







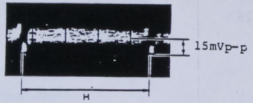
STEP. 16 BIAS LIGHT ADJUSTMENT

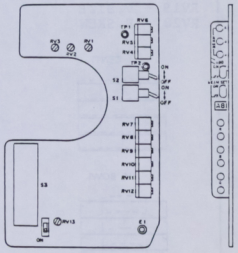
SETTING:

1	OBJECT		4	MEASURING	Oscilloscope
2	EXT-BOARD	AB-4	5		
3	LENS IRIS	Closed	6		

PROCEDURE:

1. Depress the CAP BUTTON on CCU.
2. Connect the probe to TP1 on PA-G board.
3. Adjust the RV13 (BIAS LIGHT) on AB-4 so that signal is 15mVp-p.





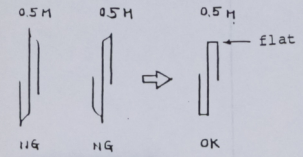
STEP. 17 PA-FREQ ADJUSTMENT

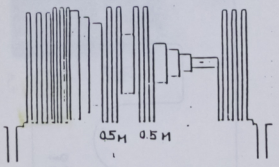
SETTING:

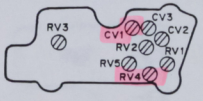
1	OBJECT	IN-MEGA CHART	4	MEASURING	Ossilloscope
2	EXT-BOARD		5		
3	LENS IRIS	70IRE, 500mV	6		

PROCEDURE:

1. Adjust the LENS IRIS for 70 IRE, 500mV(PAL)on WFM.
2. Connect the probe to TP1 on PA-G Board
3. Adjust CV1, RV4 on PA-G Board so that 0.5MHZ signal becomes flat responce.







*Adjust following channels as in procedure above.
(FROM STEP TO STEP)

MODE	MEASUR		ADJUST		ADJUST	
G - CH	PA-28	TP1	PA-28	CV1	PA-28	RV4
R - CH	PA-28	TP1	PA-28	CV1	PA-28	RV4
B - CH	PA-28	TP1	PA-28	CV1	PA-28	RV4

STEP. 18 VA-GAIN ADJUSTMENT

SETTING:

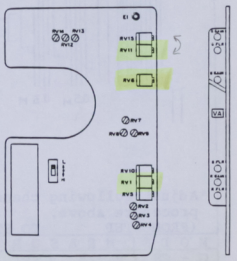
1	OBJECT	GRAY SCALE	4	MEASURING	Oscilloscope
2	EXT-BOARD	VA-18	5		
3	LENS IRIS		6		

PROCEDURE:

1. Connect probe to B20 on VA-EX board.
2. Adjust LENS IRIS for 600mV on oscilloscope.
3. Connect probe to A5 on VA-EX board.
4. Adjust RV11 (G GAIN) for 500mV.

*Adjust following channels as in procedure above.
(FROM STEP 3 TO STEP 4)

MODE	MEASUR		ADJUST	
G - CH	VA-18	A5	VA-18	RV11
R - CH	VA-18	A13	VA-18	RV1
B - CH	VA-18	A9	VA-18	RV6



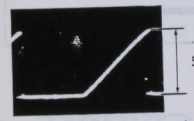
STEP. 19 TEST LEVEL ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	Oscilloscope
2	EXT-BOARD	VA-18	5		
3	LENS IRIS	CLOSED	6		

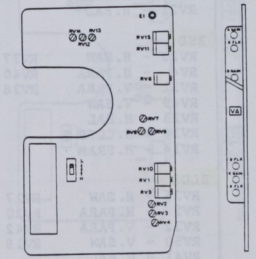
PROCEDURE:

1. Depress the TEST BUTTON on CCU.
2. Connect probe to A5 on VA-EX board.
3. Adjust RV5 (G-TEST LVL) on PA-G board so that signal is 500mV.



*Adjust following channels as in procedure above.
(FROM STEP 2 TO STEP 3)

MODE	MEASUR		ADJUST	
G - CH	VA-18	A5	PA-28	RV5
R - CH	VA-18	A13	PA-28	RV5
B - CH	VA-18	A9	PA-28	RV5



STEP. 20 BLACK SHADING ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	WFM
2	EXT-BOARD	SH-14	5		
3	LENS IRIS	Closed	6		

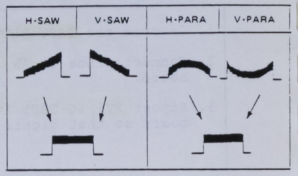
PROCEDURE:

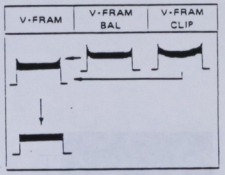
1. Set the VF select sw to [G].
2. Set the GAIN to 18dB on CCU.
3. Adjust the MASTER PEDESTAL LEVEL for 10IRE, 70mV(PAL) on CCU.
4. Adjusts all green brack shading VR for flat responce on WFM.
5. Set the VF select sw to [R] or [B].
6. Adjusts red shading, blue shading as procedure green CH.
7. Reset GAIN to 0dB on CCU.
8. Adjust MASTER PEDESTAL LEVEL for 3IRE, 20mV(PAL) on CCU.

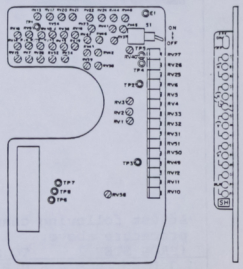
GREEN
RV27 - H.SAW
RV6 - H.PARA
RV33 - V.PARA
RV51 - V.SAW
RV48 - V.CLIP
RV44 - V.BAL
RV24 - H.CLIP
RV22 - H.FRAM
RV21 - H.BAL
RV46 - V.FRAM

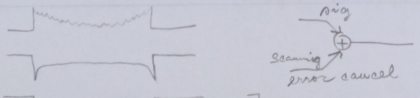
RED
RV25 - H.SAW
RV4 - H.PARA
RV31 - V.PARA
RV49 - V.SAW
RV13 - H.BAL
RV16 - H.CLIP
RV14 - H.FRAM
RV37 - V.BAL
RV40 - V.CLIP
RV38 - V.FRAM

BLUE
RV26 - H.SAW
RV5 - H.PARA
RV32 - V.PARA
RV50 - V.SAW
RV41 - V.BAL
RV45 - V.CLIP
RV17 - H.FRAM
RV20 - H.CLIP
RV42 - V.FRAM
RV18 - H.BAL









STEP. 21 Mod. SHADING BALANCE ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	WFM
2	EXT-BOARD	VA-18	5		
3	LENS IRIS	CLOSED	6		

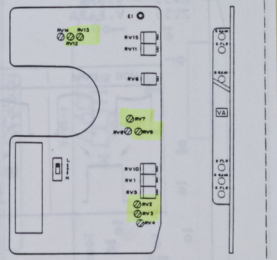
PROCEDURE:

na předchozí se na WFM navolit postupně G, R, B kanály

1. ~~Set the TEST OUT to [G].~~
2. Turn the SH-board's RV52, 53, 54 fully clockwise.
3. Select the CCU's GAIN switch in 18dB position.
4. Adjust VA-board's RV12 and RV13 for flat envelope on waveform monitor.
5. After this adjustment, go to the MODULATION SHADING adjustment.

*Adjust following channels as in procedure above.
(FROM STEP 1 TO STEP 5)

MODE	MEASUR		ADJUST	
G - CH	WFM		VA-18	RV12, 13
R - CH	WFM		VA-18	RV2, 3
B - CH	WFM		VA-18	RV7, 8



STEP. 22 MOD-SHADING ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	WFM
2	EXT-BOARD	SH-4	5		
3	LENS IRIS		6		

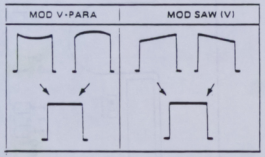
PROCEDURE:

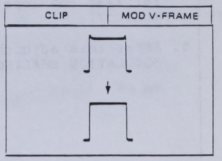
1. Set VF select SW to [G].
2. Depress the DIA-SCOPE BUTTON on CCU.
3. Adjust all modulation shading VR so that while responce is flat.
4. Set VF select SW to [R] or [B] and adjust RED/BLUE modulation shading using modulation shading VR.

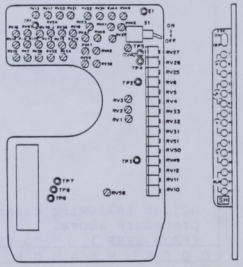
GREEN
RV9 - H.PARA RV47 - V.FRAM
RV30 - H.SAW RV23 - H.FRAM
RV54 - V.SAW
RV36 - V.PARA

RED
RV7 - H.PARA RV15 - H.FRAM
RV28 - H.SAW RV39 - V.FRAM
RV52 - V.SAW
RV34 - V.PARA

BLUE
RV8 - H.PARA RV19 - H.FRAM
RV29 - H.SAW RV43 - V.FRAM
RV53 - V.SAW
RV55 - V.PARA







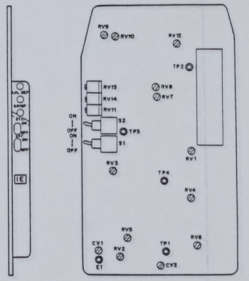
STEP. 23 30MHz VCO Oscillation ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	Oscilloscope
2	EXT-BOARD	IE-8	5		
3	LENS IRIS	CLOSED	6		

PROCEDURE:

1. Press the CCU's TEST button.
2. Scope = IE-board's TP5.
3. Adjust IE-board's CV1 for 2.5V DC.

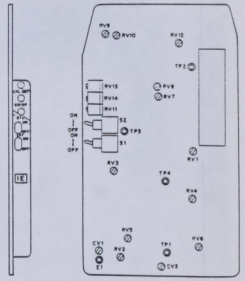


STEP. 24 PLL OFF SET (IE-8P) ADJUSTMENT

SETTING:

1	OBJECT	4	MEASURING
2	EXT-BOARD	5	
3	LENS IRIS	6	

PROCEDURE:



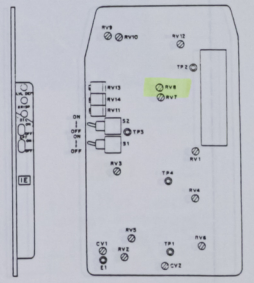
STEP. 25 IE-AGC ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	Oscilloscope
2	EXT-BOARD	IE-8P	5		
3	LENS IRIS	100 IRE, 700mV	6		

PROCEDURE:

1. Adjust lens iris for 100IRE or 700mV(in PAL) on WFM.
2. Scope = IE-extension board's A6.
3. Select scope in vertical rate moce.
   Adjust IE-board's RV8 for minimum amplitude.



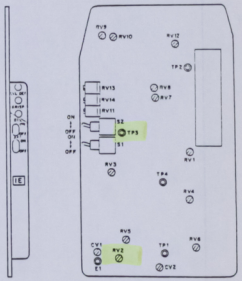
STEP. 26 MOD QUAD ADJUSTMENT

SETTING:

1	OBJECT		4 MEASURING	Oscilloscope
2	EXT-BOARD	IE-8P	5	
3	LENS IRIS	CLOSED	6	

PROCEDURE:

1. Press the CCU's TEST button.
2. Scope = IE-board's TP3.
3. Adjust IE-board's RV2 for maximum TEST signal amplitude.



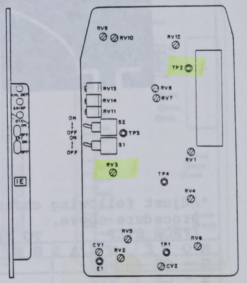
STEP. 27 DETECT QUAD ADJUSTMENT

SETTING:

1	OBJECT		4 MEASURING	Oscilloscope
2	EXT-BOARD	IE-8P	5	
3	LENS IRIS	CLOSED	6	

PROCEDURE:

1. Press the CCU's TEST button.
2. Scope = IE-board's TP2.
3. Adjust IE-board's RV3 so that the H.BLNG period should be flat.



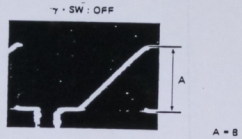
STEP. 28 GAMMA BALANCE ADJUSTMENT

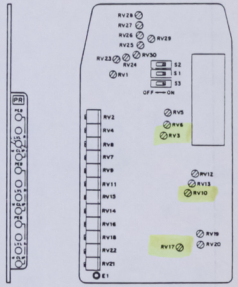
SETTING:

1	OBJECT		4	MEASURING	WFM
2	EXT-BOARD	PR-49	5		
3	LENS IRIS		6		

PROCEDURE:

1. Depress the TEST BUTTON on CCU.
2. Depress the VF select SW to [G].
3. Adjust the RV17(G-GAMMA BAL) on on PR-49 while switching the G-GAMMA ON/OFF on CCU on that PEAK LEVEL does not change.





*Adjust following channels as in procedure above.
(FROM STEP TO STEP)

MODE	MEASUR		ADJUST	
G - CH	WFM		PR-49	RV17
R - CH	WFM		PR-49	RV3
B - CH	WFM		PR-49	RV10

STEP. 29 PEDESTAL ADJUSTMENT

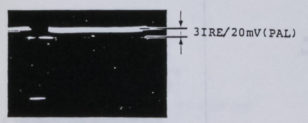
SETTING:

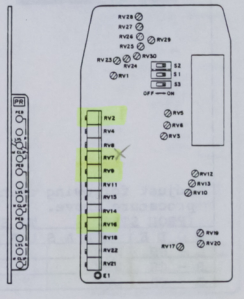
1	OBJECT		4	MEASURING	WFM
2	EXT-BOARD		5		
3	LENS IRIS	Closed	6		

PROCEDURE:

1. Depress VF select SW to G.
2. Depress the CAP BUTTON on CCU.
3. Adjust the **RV16** (G-PED) on **PR-49** so that pedestal level is 3IRE, 20mV(PAL).

Master black - 00





*Adjust following channels as in procedure above.
(FROM STEP 1 TO STEP 3)

MODE	MEASUR		ADJUST	
G - CH	WFM		PR-49	RV16
R - CH	WFM		PR-49	RV2
B - CH	WFM		PR-49	RV7

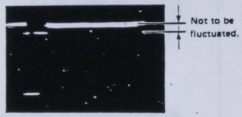
STEP 30 BLACK SET

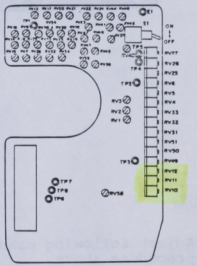
SETTING:

1	OBJECT		4	MEASURING	WFM
2	EXT-BOARD		5		
3	LENS IRIS	Closed	6		

PROCEDURE:

1. Depress the CAP BUTTON on CCU.
2. Adjust the RV11 (G BLK) on SH-12 while switching the 0dB and 18dB on CCU so that 0dB pedestal does not move 18dB pedestal level.
3. Require pedestal adjustment.





*Adjust following channels as in procedure above.
(FROM STEP TO STEP)

MODE	MEASUR		ADJUST	
G - CH	WFM		SH-14	RV12
R - CH	WFM		SH-14	RV10
B - CH	WFM		SH-14	RV11

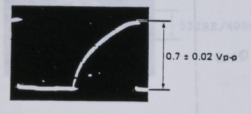
STEP. 31 PR LEVEL ADJUSTMENT

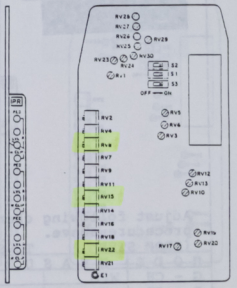
SETTING:

1	OBJECT		4	MEASURING	Oscilloscope
2	EXT-BOARD	PR-4	5		
3	LENS IRIS		6		

PROCEDURE:

1. Depress the TEST SW on CCU.
2. Connect probe to B4 on PR-EX board
3. Adjust the RV22 (G LVL) on PR-49 so that signal is 0.7Vp-p.





*Adjust following channels as in procedure above.
(FROM STEP TO STEP)

MODE	MEASUR		ADJUST	
G - CH	PR-EX	B4	PR-49	RV22
R - CH	PR-EX	B14	PR-49	RV8
B - CH	PR-EX	B8	PR-49	RV15

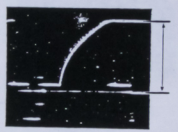
STEP. 32 EXT VF LEVEL ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	WFM
2	EXT-BOARD	IF-76, 39	5		
3	LENS IRIS	100IRE, 700mV	6		

PROCEDURE:

1. Select VF OUT in [G].
2. Press CCU's PANEL TEST button.
3. Adjust IF-76 RV1 (REG VIDEO GAIN) for 100[IRE] or 700mV(in PAL) on WFM.



*Adjust following channels as in procedure above.
(FROM STEP TO STEP)

MODE	MEASUR		ADJUST	
G - CH	WFM		IF-39	RV1
R - CH	WFM		IF-39	RV2
B - CH	WFM		IF-39	RV3

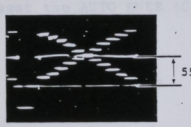
STEP. 33 GAMMA ADJUSTMENT

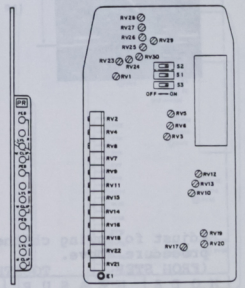
SETTING:

1	OBJECT	GRAY SCALE	4	MEASURING	WFM
2	EXT-BOARD		5		
3	LENS IRIS	100IRE, 70mV	6		

PROCEDURE:

1. Depress the VF select SW to [G].
2. Adjust the LENS IRIS for 100IRE, 700mV on WFM.
3. Adjust the RV18(G-γ) on PR-42 so that signal cross point is 55IRE, 400mV (PAL) on WFM.
4. Repeate pedestal adjustment and PR-level adjustment.





*Adjust following channels as in procedure above.
(FROM STEP 1 TO STEP 3)

MODE	MEASUR		ADJUST	
G - CH	WFM		PR-42	RV18
R - CH	WFM		PR-42	RV4
B - CH	WFM		PR-42	RV11

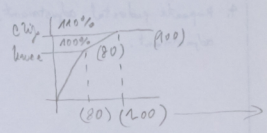
STEP. 34 KNEE POINT ADJUSTMENT

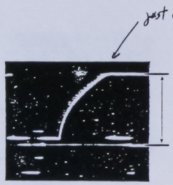
SETTING:

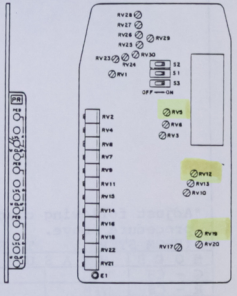
1	OBJECT	GRAY SCALE	4	MEASURING	WFM
2	EXT-BOARD	PR-49	5		
3	LENS IRIS	100IRE, 700mV	6		

PROCEDURE:

1. Select VF OUT in [G].
2. Push CCU panel TEST button.
3. Adjust fully clockwise the PR-board's RV6, RV20 and RV13 (R.G.B. slope).
4. Adjust PR-board's RV19 (G-knee point) so that test signal peak level is ~~100IRE) or 700mV(PAL)~~ just clipped.







*Adjust following channels as in procedure above.
(FROM STEP TO STEP)

MODE	MEASURE	ADJUST	
G - CH	WFM	PR-49	RV19
R - CH	WFM	PR-49	RV5
B - CH	WFM	PR-49	RV12

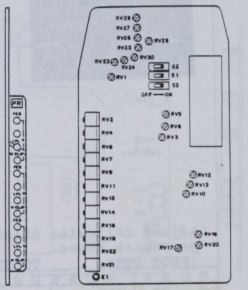
STEP. 35 KNEE SLOPE ADJUSTMENT

SETTING:

1	OBJECT	GRAY SCALE	4	MEASURING	WFM
2	EXT-BOARD	PR-49	5		
3	LENS IRIS	100IRE, 700mV	6		

PROCEDURE:

1. Set the VF select SW to [G].
2. Adjust LENS IRIS so that WFM signal is 100IRE, 700mV(PAL).
3. Open the LENS IRIS 2½ steps more than step 2.
4. Set the AUTO KNEE on CCU.
5. Adjust RV29 on PR-49 so that 85% area signal is just suppressed on WFM.
6. Adjust RV20 (G SLOPE) on PR-49 so that peak signal is 750mV(PAL) on WFM.
7. Reset the AUTO KNEE (OFF) on CCU.



*Adjust following channels as in procedure above.
(FROM STEP 1 TO STEP 5)

MODE	MEASURE	ADJUST	
G - CH	WFM	PR-49	RV20
R - CH	WFM	PR-49	RV6
B - CH	WFM	PR-49	RV13

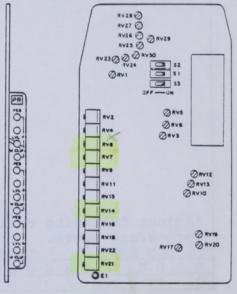
STEP. 36 WHITE CLIP ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	WFM
2	EXT-BOARD		5		
3	LENS IRIS	C.SAM	6		

PROCEDURE:

1. Select VF OUT in [C].
2. Press the TEST button on CCU panel.
3. Select 18dB GAIN switch on CCU.
4. Adjust PR-board's RV21 (G.W.CLIP) for clipping level of 110[IRE] or 750mV(in PAL).



*Adjust following channels as in procedure above.
(FROM STEP TO STEP)

MODE	MEASUR	ADJUST	
G - CH	WFM	PR-49	RV21
R - CH	WFM	PR-49	RV8
B - CH	WFM	PR-49	RV14

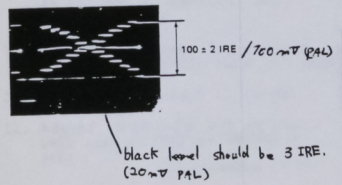
STEP. 37 FLARE ADJUSTMENT

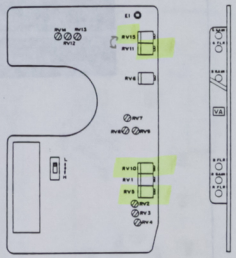
SETTING:

1	OBJECT	GRAY SCALE	4	MEASURING	WFM
2	EXT-BOARD	VA-18	5		
3	LENS IRIS	100IRE, 700mV	6		

PROCEDURE:

1. Select VF OUT in [C].
2. Shoot gray scale chart. Full the chart in scan size.
3. Adjust lens iris that white level is 100[IRE] or 700mV(in PAL).
4. Adjust VA-board's RV11 (G.FLR) that black level is 3[IRE] or 20mV (in PAL) on WFM.
5. GO to the PEDESTAL adjustment and repeat these FLARE adjustment and PEDESTAL adjustment several times.





*Adjust following channels as in procedure above.
(FROM STEP TO STEP)

MODE	MEASUR	ADJUST	
G - CH	WFM	VA-18	RV11
R - CH	WFM	VA-18	RV5
B - CH	WFM	VA-18	RV10

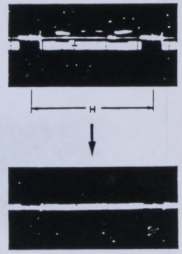
STEP. 38 V DTL NULL ADJUSTMENT

SETTING:

1	OBJECT	GRAY SCALE	4	MEASURING	Oscilloscope
2	EXT-BOARD	IE-8P	5		
3	LENS IRIS	100IRE, 700mV	6		

PROCEDURE:

1. Set the VF select SW to [C].
2. Set the DTL BUTTON on CCU. (ON)
3. Connect probe to A26 on IE-EX board.
4. Adjust RV12 (V DTL NULL) on IE-8P so that signal amplitude is minimum.



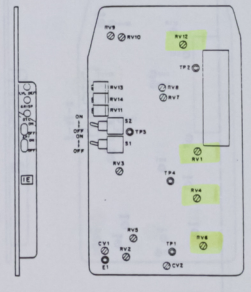
STEP. 39 APT (1/2) ADJUSTMENT

SETTING:

1	OBJECT	EN-MEGA CHART	4	MEASURING	VEC
2	EXT-BOARD		5		
3	LENS IRIS	90IRE, 650mV	6		

PROCEDURE:

1. Select the VF OUT in [G].
2. Press the APT button of CCU. (ON)
3. Shoot the multi-burst chart. Adjust lens iris for ~~90[IRE] or~~ 650mV(in PAL) at 0.5MHz. (and 0.5MHz = 100% Ref.)
4. Adjust lens focus for maximum amplitude at 4MHz, 5MHz and 6MHz. (APT)
5. Set IE-board's S1 to ON.
6. Adjust RV6 so that 5MHz is 70[IRE] or 350mV(in PAL). (5MHz = 70%) 455mV
7. Set IE-board's S1 to OFF.
8. Select VF OUT in [R].
9. Adjust lens iris that 0.5MHz point is 90[IRE] or 650mV(in PAL). (Call this 100%)
10. Adjust lens focus for maximum amplitude at 4MHz, 5MHz and 6MHz.
11. Set the IE-board's S1 in ON.
12. Adjust IE-board's RV1 so that 5MHz has 60[IRE] or 400mV(in PAL). 400mV = 60% of 650mV
13. Set IE-board's S1 in OFF.
14. Select VF OUT in [B].
15. Adjust lens iris for 650mV at 0.5MHz. (Call this 100%)



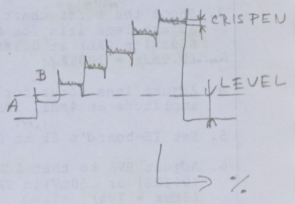
STEP. 40 APT (2/2) ADJUSTMENT

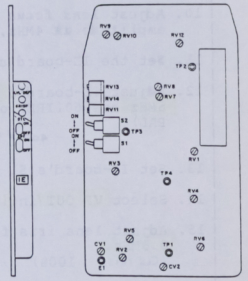
SETTING:

1	OBJECT		4	MEASURING	
2	EXT-BOARD		5		
3	LENS IRIS		6		

PROCEDURE:

16. Adjust lens focus for maximum amplitude at 4MHz, 5MHz and 6MHz.
17. Set IE-board's S1 to ON.
18. Adjust IE-board's RV4 for 70[IRE] at 5MHz. (5MHz = 70%)
19. Put CCU's APT button in OFF.
20. Set IE-board's S1 APT to ON





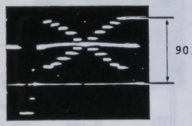
STEP. 41 DTL LEVEL DEPENDENT ADJUSTMENT

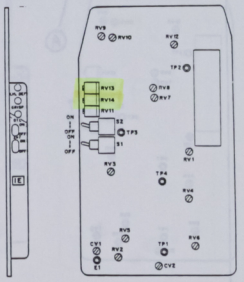
SETTING:

1	OBJECT	GRAY SCALE	4	MEASURING	WFM
2	EXT-BOARD		5		
3	LENS IRIS	90IRE, 650mV	6		

PROCEDURE:

1. Depress VF select SW to [G].
2. Depress DTL BUTTON on CCU (DTL ON).
3. Adjust the LENS IRIS so that signal is 90IRE, 650mV (PAL) on WFM.
4. Adjust the RV13 (LVL DEP) from counter clockwise to clockwise so that A point noise is eliminated and B point noise is not affected.





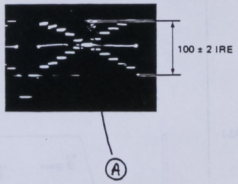
STEP. 42 DTL CRISPNING ADJUSTMENT

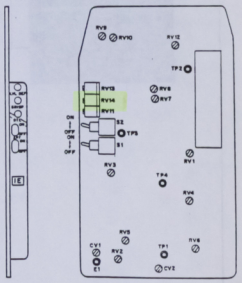
SETTING:

1	OBJECT	GRAY SCALE	4	MEASURING	WFM
2	EXT-BOARD		5		
3	LENS IRIS	100IRE, 700mV	6		

PROCEDURE:

1. Depress the DTL BUTTON on CCU.
2. Adjust RV14 (CRISP) on IE-8P from counter clockwise to clockwise slowly so that A area noise is just decreasing on WFM.





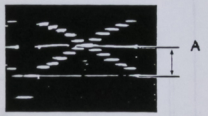
STEP. 43 DTL BLK BALANCE ADJUSTMENT

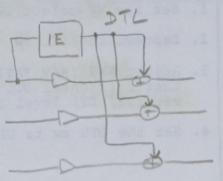
SETTING:

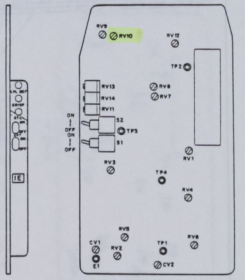
1	OBJECT	GRAY SCALE	4	MEASURING	WFM
2	EXT-BOARD	IE-8P	5		
3	LENS IRIS	100IRE, 700mV	6		

PROCEDURE:

1. Set the VF select SW to (G).
2. Set the DTL BUTTON on CCU.
3. Adjust RV10 (OFFSET) on IE-8 so that A area level dose not change while switching the S2 ON and OFF on IE-8.
   Finally leave
4. S2 (DTL SW) at ON on IE-8P







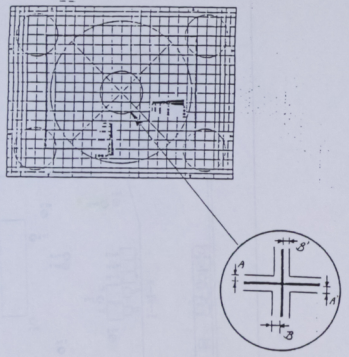
STEP. 44 DTL H/V RATIO ADJUSTMENT

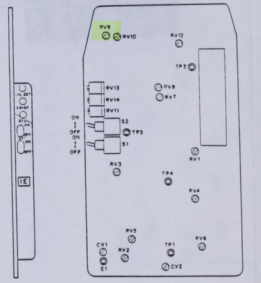
SETTING:

1	OBJECT	GRAY SCALE	4	MEASURING	B/W MONITOR
2	EXT-BOARD		5		
3	LENS IRIS	70IRE, 500mV	6		

PROCEDURE:

1. Set the VF select SW to [G].
2. Depress the DTL sw on CCU.
3. Adjust RV9 (H/V RATIO) on IE-8P so that horizontal DTL level and vertical DTL level is same level.
4. Set the DTL sw to OFF on CCU.





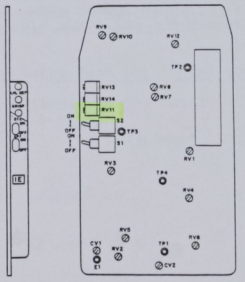
STEP. 45 DTL LEVEL ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	
2	EXT-BOARD		5		
3	LENS IRIS		6		

PROCEDURE:

1. Adjust the RV11 on IE-8 so that RV11 position is 90° position from counter clockwise



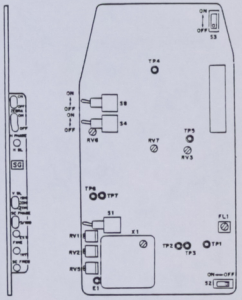
STEP. 46 SG BOARD SP/SEGI VD ADJUSTMENT

SETTING:

1	OBJECT		4	MEASURING	Oscilloscope
2	EXT-BOARD	SG 85A	5		
3	LENS IRIS	Closed	6		

PROCEDURE:

1. Connect CH1 probe to **B14** on SG-EX board and CH2 probe to **A6** on SG-EX board.
2. Set the Oscilloscope to CHOP mode.
3. Adjust RV7 on SG-85A so that CH2 signal is 7 H periods +0.5uSEC.
4. Adjust RV3 on SG-85A to mechanical center.



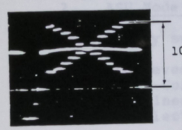
STEP. 47 AUTO IRIS ADJUSTMENT

SETTING:

1	OBJECT	GRAY SCALE	4	MEASURING	VFM
2	EXT-BOARD	AT-29/33	5		
3	LENS IRIS		6		

PROCEDURE:

1. Depress the AUTO IRIS BUTTON on CCU.
2. set **RV1** (IRIS MOD) on **AT-29** at the mechanical center position.
3. Adjust **RV2** (IRIS SET) on **AT-29** so that signal is 100IRE, 700mV(PAL)
4. Reset AUTO IRIS BUTTON on CCU.



STEP. 48 CC/ND FILTER SERVO. ADJUSTMENT

SETTING:

1	OBJECT	4	MEASURING
2	EXT-BOARD	5	
3	LENS IRIS	6	

PROCEDURE:

1. Remove CHU rear panel.
2. Press LOCAL button on the CHU's rear panel.
3. Select the CC FILTER switch in A.
4. Adjust SW-79 board's RV2 so that CC filter stops at A.
5. Select CC FILTER switch in D.
6. Adjust SW-79 board's RV1 so that CC filter stops at D.
7. Repeat steps 5 ang 6 several times.
8. Select ND FILTER switch in 0.
9. Adjust SW-79 board's RV2 so that ND filter stops at 0.
10. Select ND FILTER switch in 3.
11. Adjust SW-79 board's RV1 so that ND filter stops at 3.

FINALLY PUT ALL SWITCHES TO NORMAL OPERATIONAL POSITIONS SEE P 3-49/50/51 etc.

1. Camera Head/CCU Identity Switches

In the camera head, identifying number is set on S2 on IF-71 board. (Board is hidden under a cover behind the right hand side door. Open door, pull off cover, switch off camera head, pull out IF-71 board to see rotary switch.)

At the CCU the corresponding switch is rotary switch S3 on the AT board. If these switches do not agree, a warning may come up on the LED display on CCU control panel unless it has been disabled by pole 6 of DIL switch S1 on the CP-90 board of this control panel. Note AT board in CCU has a second switch S2 for identifying CCU to the MSU.

2. ASU Mode Switch on AT-27 Board in Camera Head

This rotary switch has no effect when connected to CCU.

It is believed its function is to select various auto set up modes i.e. Colour/Regi/Full etc. when camera head is self-contained and RM-3601 can only start ASU but cannot connect select modes.

3. Check List of Switches on Camera Head for Normal Operation

As the manuals do not yet show switches on the small panels of boards, see pages 3.50 and 51.

CAMERA HEAD SWITCH POSITIONS FOR NORMAL OPERATION WITH CCU AND/OR REMOTE CONTROL PANELS

BOARD	SWITCH ON BOARD PANEL		OTHER SWITCHES ON BOARD	
AB	ABO (S2) BEAM SET (S1)	ON OFF	BIAS LIGHT (S3)	ON
VA	-		GAIN RANGE (S1)	ANY
SH	FRK	OFF	-	
DF	-		S2 OVERSCAN (S2)	OFF
IE	DTL (S2) APT (S1)	ON ON		
PR	-		MASK (S1) GAMMA (S2) AUTO KNEE (S3)	A A A
AT-27	A.S.U. MODE (S2) CHART (S1) LENS (S3)	A A A*		
AT-29	ALL PRST (S3) MODE (S2)	OFF NOR		
EN	EBU/95%	EBU	V (S2) U (S3)	ON ON
SG	ZEBRA TEST SC PHASE	OFF A S	CF (S2) CABLE COMP (S3) H BLKG (S7)	A A
IF-39	VF B/W - COL CB MIX ZOOM MODE	VF ON! S	ZOOM POS SAFETY ZONE CENTRE MARKER	#OFF #OFF #OFF

KEY

A = ANY
S = AS REQUIRED BY SYSTEM
* = IF LENS IS NOT CODED IT WILL BE NECESSARY TO SELECT LENS FILE WITH THIS SWITCH
NOR = NORMAL
#OFF GIVES CONTROL TO SWITCHES ON REAR PANEL OF CAMERA
! = TO DISPLAY Y SIGNAL ON BW VIEWFINDER, LINK RS1 ON IF-76

CAMERA HEAD SWITCH POSITION FOR NORMAL OPERATION

Additional switches behind right hand side door.

(1) ON/OFF switch in bottom left hand corner must be ON. (Is only turned OFF to facilitate pulling some boards out to check internal switch positions, as an alternative to switching off camera head from CCU control panel.)

(2) Switches on boards below power assembly. (Pull off cover to expose boards)

BOARD	SWITCH ON BOARD PANEL		OTHER SWITCHES ON BOARD	
IF-71	CCU/REMOTE (S1)	A*	S2 CAMERA HEAD NO	0-7
AU	CARBON/DYN (S1) CARBON/DYN (S2)	S S		

A = ANY (CIRCUIT WILL RECEIVED CCU DATA IN ANY)

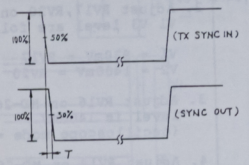
* = SWITCH POSITION IS ONLY IMPORTANT IF CCU AND RM-3601 ARE BOTH CONNECTED TO CHU

S = TO SUIT INTERCOM MICROPHONE TYPES USED AT CAMERA HEAD (FOR ENG (CH1) AND PRODUCTION (CH2))

STEP. H PHASE ADJUSTMENT

[BOARD = SG-9]

1. Set the TRIAX TEST SW to NO on AT-26 in CCU.
2. Set the TEST SW to ON on SG-9 in CCU.
3. Sets the BARS, TEST SW to OFF on
4. Connect CH1 probe to TP16 and CH2 probe to TP11 on SG-9 in CCU.
5. Adjust RV6 on SG-9 so that CH1 signal phase is adjusted to CH2 signal phase.
6. Set the RV11 on SG-9 to mechanical center.

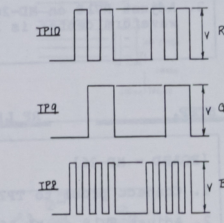


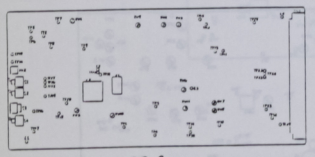
STEP. R/G/B LEVEL ADJUSTMENT

[BOARD = MD-26]

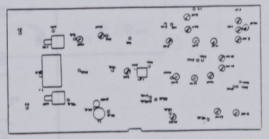
1. Connect probe to following TP and adjust each VR on MD-26 so that signal is 518mV.

TP10	RV1	(R LEV)	518mV
TP9	RV2	(G LEV)	518mV
TP8	RV3	(B LEV)	518mV





SG-9



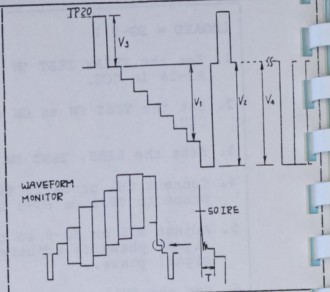
MD-26

STEP. Y LEVEL ADJUSTMENT

[BOARD = MD-26]

1. Connect probe to TP20 on MD-26.
2. Adjust RV17,RV20 on MD-26 so that V1 V3 level are following specs.

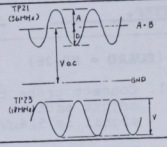
   V1 = 930mV = RV17
   V2 = 1400mV = RV20
3. Adjust RV16 on MD-26 so that V4 level is 1400mV. (oscilloscope mode = VD)
4. Adjust RV14 on MD-26 so that T point is 1.0 sec on WFM.



STEP. CARREA LEVEL ADJUSTMENT

[BOARD = MD-26]

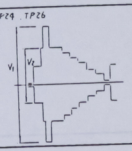
1. Connect probe to TP21 on MD-26.
2. Adjust RV18 on MD-26 so that sin waveform center is 1.4VDC.

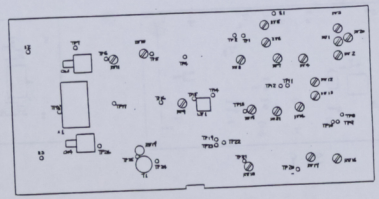


STEP. RF LEVEL ADJUSTMENT

[BOARD = MD-26]

1. Connect probe to TP26 on MD-26.
2. Adjust RV19 on MD-26 so that V1 level is 1.2Vp-p.

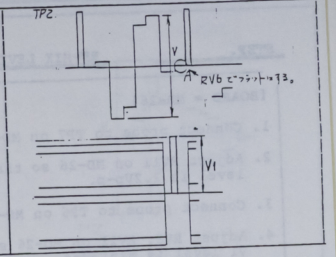




STEP. R-Y LEVEL ADJUSTMENT

[BOARD = MD-26]

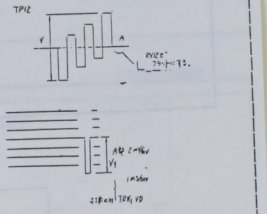
1. Connect prove to TP2 on MD-26.
2. Adjust RV6 on MD-26 so that A area is flat responce.
3. Adjust RV5 on MD-26 so that V level is 525mV.
4. Repeat step 2 and 3.
5. Adjust RV7 on MD-26 so that V1 level is 350mV.

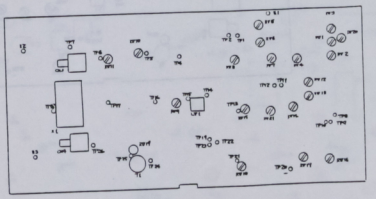


STEP. B-Y LEVEL ADJUSTMENT

[BOARD = MD-26]

1. Connect prove to TP12 on MD-26.
2. Adjust RV12 on MD-26 so that A area is flat responce.
3. Adjust RV13 on MD-26 so that V level is 525mV.
4. Repeat step 2 and 3.
5. Adjust RV14 on MD-26 so that V1 level is 350mV.

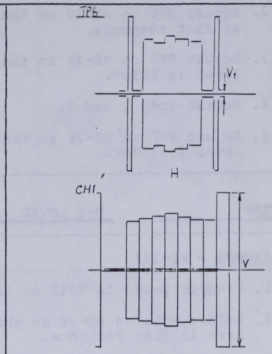


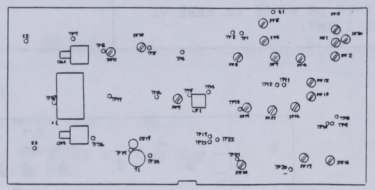


STEP.	RF-MIX LEVEL	ADJUSTMENT

[BOARD = MD-26]

1. Connect probe to TP7 on MD-26.
2. Adjust RV11 on MD-26 so that V level is 2.2Vp-p.
3. Connect probe to TP6 on MD-26.
4. Adjust RV8, RV21 on MD-26 so that V1 level is minimums.

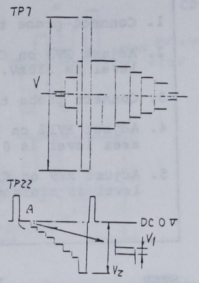




STEP.	1ST 2ND AGC OUT	ADJUSTMENT

[BOARD = YD-18]

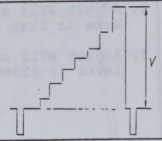
1. Connect probe to TP7 on YD-18.
2. Adjust RV3 on YD-18 so that V level is 700mVp-p.
3. Connect probe to TP22 on YD-18.
4. Adjust RV7 on YD-18 so that V1 level is minimum.
5. Connect probe to TP22 on YD-18.
6. Adjust RV10 on YD-18 so that A area DC is 0 DC Voltage.
7. Connect probe to TP22 on YD-18.
8. Adjust RV11 on YD-18 so that V2 level is 730mV.

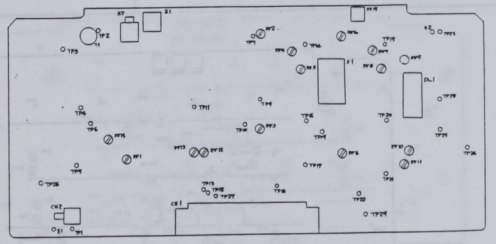


STEP.	Y OUT PUT LEVEL	ADJUSTMENT

[BOARD = YD-18]

1. Connect probe to TP23 on YD-18.
2. Adjust RV9 on YD-18 so that V level is 700mV.

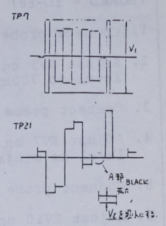




STEP.	R-Y DEMOD	ADJUSTMENT

[BOARD = CD-30]

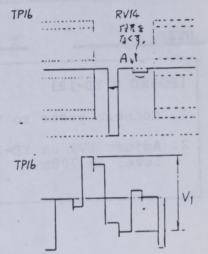
1. Connect probe to TP7 on CD-30.
2. Adjust RV3 on CD-30 so that V1 level is 330mV.
3. Connect probe to TP21 on CD-30.
4. Adjust RV12 on CD-30 so that A area level is 0 DC Voltage.
5. Adjust RV9 on CD-30 so that V2 level is minimum.

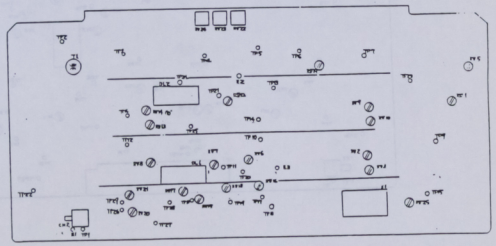


STEP.	R-Y LEVEL	ADJUSTMENT

[BOARD = CD-30]

1. Connect probe to TP16 on CD-30.
2. Adjust RV14 on CD-30 so that A area is flat responce.
3. Adjust RV13 on CD-30 so that V1 level is 525mV.

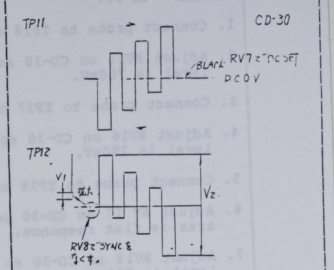




STEP.	B-Y LEVEL	ADJUSTMENT

[BOARD = CD-30]

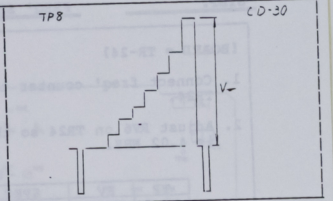
1. Connect probe to TP11 on CD-30.
2. Adjust RV7 on CD-30 so that BLACK level is 0 DC Voltage.
3. Connect probe to TP12 on CD-30.
4. Adjust RV2 on CD-30 so that V1 level is flat responce.
5. Adjust RV8 on CD-30 so that SYNK AREA is flat responce.
6. Adjust RV6 on CD-30 so that V2 level is 525mV.

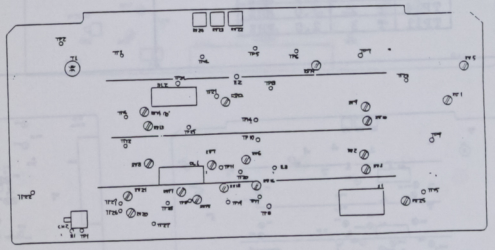


STEP.	Y LEVEL	ADJUSTMENT

[BOARD = CD-30]

1. Connect probe to TP8 on CD-30.
2. Adjust RV15 on YD-18 so that V1 level is 700mV.

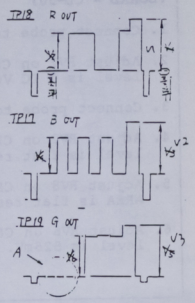




STEP. R/B/G OUT LEVEL **ADJUSTMENT**

[BOARD = CD-30]

1. Connect probe to TP18 on CD-30.
2. Adjust RV15 on CD-30 so that V1 level is 700mV.
3. Connect probe to TP17 on CD-30.
4. Adjust RV16 on CD-30 so that V2 level is 700mV.
5. Connect probe to TP19 on CD-30.
6. Adjust RV 17 on CD-30 so that A area is flat responce.
7. Adjuat RV18 on CD-30 so that V3 level is 700mV.
8. Repeat step 6 and 7.

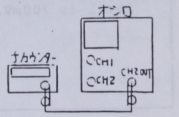


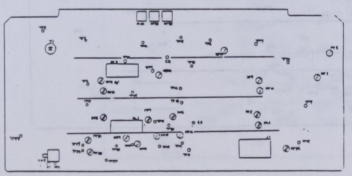
STEP. FREQ' SET 1 **ADJUSTMENT**

[BOARD = TR-24]

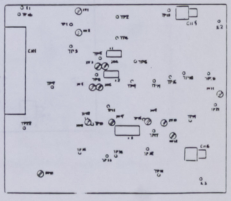
1. Connect freq' counter to TP9 on TR24.
2. Adjust RV6 on TR24 so that freq' is 4.02 MHZ.

TP	RV	SPEC
TP 9	RV 6	4.02 MHZ
TP 6	RV 4	5.02 MHZ
TP 2	T 1	6.0 MHZ
TP 4	T 2	7.0 MHZ
TP11	T 3	2.0 MHZ





CD-30



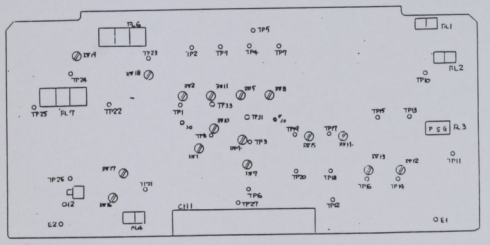
TR-24

STEP. FREQ' SET 2 **ADJUSTMENT**

[BOARD = TR-23]

1. Connect freq' counter as follows.

TR-23

TP 2	RV 2	4.520 MHZ
TP 4	RV 5	3.520 MHZ
TP 7	RV 8	5.520 MHZ

2. Set S1 on TR-23 to TEST .
3. Connect freq' counter to TP9 on TR-23.
4. Adjust RV11 on TR-23 so that freq' is 6.515MHZ.
5. Set S1 on TR-23 to NORMAL POSITION.